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XXVIII. *A Deſcription of a Fire-Engine of a new Conſtruction, by the ſame. Extracted from a Letter to the ſame.*

Portſmouth, *January* 28, 1782.

SIR,

HAVING conſtructed a model of a portable fire-engine, on the ſame principles as the pump-engine, I do myſelf the honour to forward you a deſcription of it.

Plate VI. Fig. 1. AB and CD are the edges of two planks, confined together by four bolts. *a b c d* are two cylindrical barrels: in each of theſe barrels a piſton with a valve is faſtened to the ſpear *e*, and is moved up and down alternately by the motion of the arms E E. Under each barrel a hole is made through the plank A B, and covered with a valve. E E are arms hung on the common centre *f*. Arms parallel to theſe are on the oppoſite ſide. *g* is the end of a handle which is faſtened acroſs the ends of the arms. A bolt at *h* goes acroſs from arm to arm; to this bolt the piece *i k* is faſtened, and plays upon it; the lower end of this piece is faſtened to the top of the ſpear *e*. G *l f* is a ſtandard to ſupport the arms; another anſwering to it on the oppoſite ſide, both being notched into the edges of the planks, are ſufficiently ſecured by one bolt going through them at *l*, and having a nut or forelock on the oppoſite ſide. HI HI are ſquare braces, which anſwer the purpoſe of ducts, through which the water aſcends from the barrels through the plank at *m*. KL KL are irons in the form of a ſtaple to confine the braces; the lower ends of theſe irons meet, and are ſecured with one bolt going through them and MN *n o*, which is a piece going up through a mortice in the centre of the planks; this piece is ſquare from the lower end upward as high as the top of the braces; from thence to the top it is cylindrical; the

upper

upper end being bored hollow, far enough down to communicate with the braces. O P is an iron ring going round the tube, having two ſhanks going up through the head, with ſcrews on the top at *p q.* *r s* is a ferrule nailed round the tube. The head and pipe are ſo nearly ſimilar to thoſe of the pump-engine that they need no further deſcription.

Fig. 2. is the ſame engine; the arms and ſtandards being taken off to give a more intelligible deſcription of the mode of ſecuring the braces, which is effectually done by one wedge driven into the mortice *a,* under the upper plank. *b* is a hole for the bolt to paſs through which ſecures the ſtandards. In this figure a ſide view of the head is given, with the pipe in a perpendicular direction.

The work is confined within a box ſet on wheels as common. The whole is made of wood except the ſpears of the pumps and a few bolts, &c. This model throws water about the ſame diſtance as the miniature pump-engine, the pumps being of the ſame bore. Engines on this conſtruction may be made in any place where a common pump can; and the inſide work will not be more than one quarter the coſt of thoſe on the uſual conſtruction; and the labour of working them will (as I conceive) be much leſs than in the others; theſe conſiderations may perhaps recommend them to ſome attention.

◆

Plate 6.

Fig. I

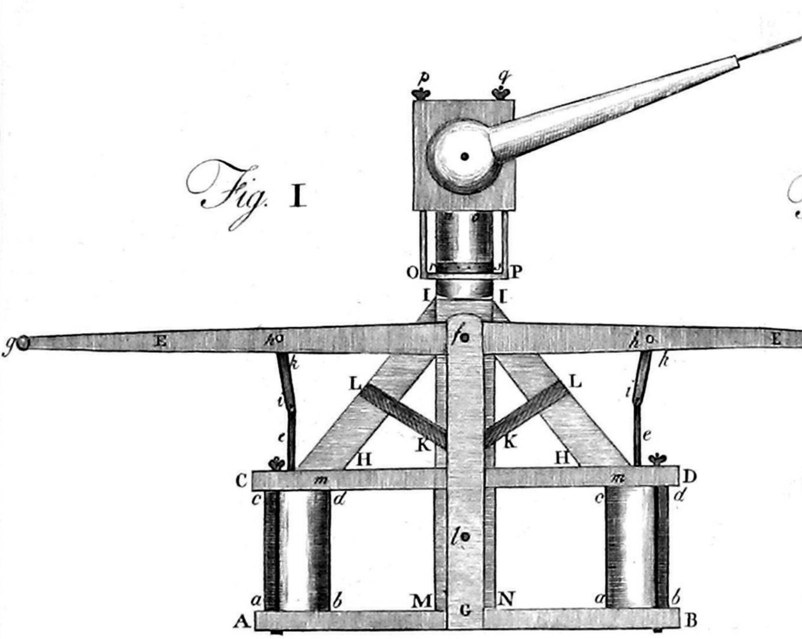

Fig. II

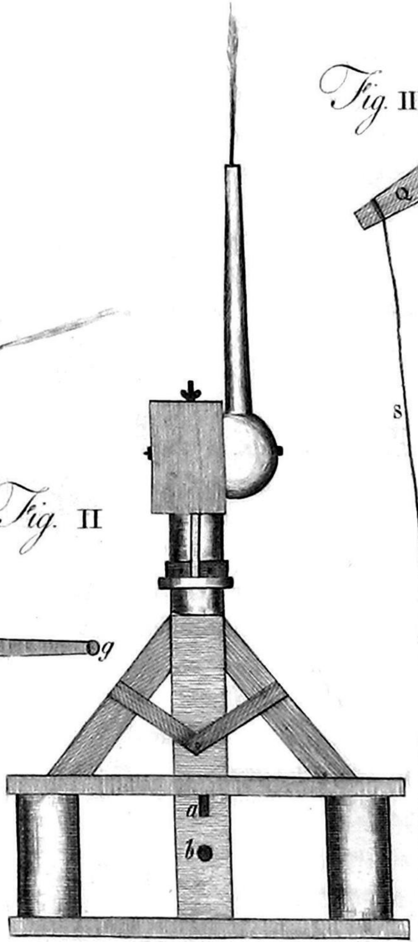

Fig. III

Fig. IV